

REMOTE PRINTING (OSC-3)

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REMOTE PRINTING

OVERVIEW

This document provides instructions to set up remote printing services using AIX to support MUNIS printing needs. Remote printing refers to the ability to use printers that are not directly connected to the RS6000 MUNIS host. Remote printing can be accomplished by printing directly to a local area network (LAN) printer or by printing to a printer attached to a PC that acts as a print server.

PRINTING FROM MUNIS DIRECTLY TO A NETWORKED PRINTER USING HEWLETT PACKARD JETDIRECT (Internal or External)

Recent Hewlett Packard (HP) printers come with an expansion slot which can be fitted with a JetDirect card. This card enables the HP laser printer to be directly connected to the LAN anywhere there is an available network connection. This type of configuration allows users on the RS6000 server to print to the HP printer along with users on Novell Netware servers or Microsoft NT servers. This is an excellent solution for remotely printing from MUNIS since it allows portrait as well as landscape options for reports and works relatively trouble-free. There is also an external version of JetDirect which can be used with existing line printers.

There are four basic steps in configuring HP JetDirect printing for MUNIS:

1. If using an internal JetDirect card, install the printer and enter IP and sub-net numbers through the printer menu. If using an external JetDirect card, enter the IP and sub-net numbers through the hpjetadmin utility. Refer to your Hewlett Packard JetDirect documentation for detailed instructions.
2. Add a host entry on the IBM RS6000. (See section entitled *Adding a Host on the RS6000 for a Network Printer* below.)
3. Create a remote print queue on the RS6000. (See section entitled *Creating a Print Queue on the RS6000 for a Network Printer* below.)
4. Set up the printer in MUNIS. (See *MUNIS System Administration (MSA-1)* in the *MUNIS User Procedures Guide* for instructions.)

Below are detailed instructions for steps 2 and 3 that must be performed on the **RS6000** to configure a network remote printer.

Adding a Host on the RS6000 for a Network Printer (HP JetDirect)

The following steps must be followed to add a network printer as a host:

1. Login to the RS6000 server as “root” at the console.
2. At the \$ prompt, type the following:

smit tcpip (Press **Enter**.)

This will bring up the TCP/IP screen.
3. Select the **Further Configuration** option on the TCP/IP screen.
4. Select the **Name Resolution** option on the Further Configuration screen.
5. Select the **Hosts Table** option on the Name Resolution screen.
6. Select the **Add a Host** option on the Hosts Table screen.

The following screen is displayed:

<u>S</u> ession	<u>E</u> dit	<u>C</u> ommands	<u>S</u> ettings	<u>H</u> elp
Add a Host Name				
Type or select values in entry fields. Press Enter AFTER making all desired changes.				
				[Entry Fields]
* INTERNET ADDRESS (dotted decimal)				[]
* HOST NAME				[]
ALIAS(ES) (if any - separated by blank space)				[]
COMMENT (if any - for the host entry)				[]
F1=Help		F2=Refresh	F3=Cancel	F4=List
Esc+5=Reset		Esc+6=Command	Esc+7=Edit	Esc+8=Image
Esc+9=Shell		Esc+0=Exit	Enter=Do	

7. Using the **down arrow key** to navigate, enter the following information on the Add a Host Name screen:

Field	Description
Internet Address	Enter the IP address of the HP JetDirect card.
Host Name	Enter hplj (or other descriptive host name).
Alias(es)	Leave blank.
Comment	Enter HPLJ Remote Printing .

8. Press **Enter** to complete the process of adding a host name.
9. After the processing is complete, press the **F3 key twice** to go to the Hosts Table screen.

10. Select the **List All Hosts** option on the Hosts Table screen to verify that the host you added is now listed. If the host is not listed, repeat the steps above.
11. After the host name has been added, press **F3** until you have exited **smit**.

Creating a Print Queue on the RS6000 for a Networked Printer (HP JetDirect)

The following steps must be followed to create a print queue for a networked printer:

1. At the \$ prompt, type the following:

smit print (Press **Enter**.)

This will bring up the Print Spooling screen.

2. Select the **Add a Print Queue** option on the Print Spooling screen.

The following sub-screen is displayed:

Session	Edit	Commands	Settings	Help
Print Spooling				
Move cursor to desired item and press Enter				
Start a Print Job				
Manage Print Jobs				
Add a Print Queue				
Move cursor to desired item and press Enter. Use arrow keys to scroll.				
#ATTACHMENT TYPE		DESCRIPTION		
local		Printer Attached to Local Host		
remote		Printer Attached to Remote Host		
xstation		Printer Attached to Xstation		
ascii		Printer Attached to ASCII Terminal		
hpJetDirect		Network Printer (HP JetDirect)		
file		File (in /dev directory)		
other		User Defined Backend		
F1=Help		F2=Refresh	F3=Cancel	
Esc+8=Image		Esc+0=Exit	Enter=Do	
F1/=Find		n=Find Next		

3. Using the **down arrow key** to navigate, select **hpJetDirect** from the menu on the sub-screen above.
4. Select the **Manufacturer** of the printer from the Remote Printer Type screen.
5. Select the printer **model** from the menu that is displayed.
6. Using the **down arrow key** to navigate, on the BOOTP/TFTP Server screen select:

#2 for Do NOT Make This System a BOOT/TFTP Server

7. Using the **down arrow key** to navigate, on the Add a Print Queue screen enter:

Line	Description
First Line:	Enter a descriptive queue name that corresponds to the host name added in the previous section, <i>Adding a Host on the RS6000 for a Network Printer (HP JetDirect)</i> . For example use the host name with _qr attached for the queue name or hplj_qr .
Second Line:	Leave blank.
Third Line:	Leave blank.
Fourth Line:	Enter the host name added in the previous section, <i>Adding a Host on the RS6000 for a Networked Printer (HP JetDirect)</i> , step 7.

8. Press **Enter** to complete the process of adding a print queue.
9. After the processing is complete, press the **F3 key twice** to go to the Print Spooling screen.
10. Select the **List All Print Queues** option on the Print Spooling screen and press **Enter** to verify that the print queue you added is now listed. If the print queue is not listed, repeat the steps above.
11. If the print queue is listed, press **F3** until you exit **smit**.
12. At the \$ prompt, type the following command to test the printer:
lp -d queue name /etc/motd where queue name is the name added in step 7 above
13. Press **Enter**. If the printer does not print, retrace the steps above.

PRINTING FROM MUNIS USING FTP'S OnNet PRINT SERVER (lpd)

The Server Control component of FTP's OnNet software enables remote printing from AIX to Windows 95 PC's that then act as print servers. When installed on the PC, the server control component gives MUNIS users the ability to remotely print to the printers connected to that PC.

The following are the basic steps to set up remote printing using a print server:

1. Set up the printer according to the standard operating procedures document developed by KDE. These settings have been tested both in a lab environment and in the field by DAS Technical Support and contain the physical setup as well as the AIX virtual printer settings. (See the document *Host Printing - Parallel (OSC-1)* in the *MUNIS User Procedures Guide* for instructions on this process.)
2. Install the proper print driver in Windows for your printer and set it as default. (See the section entitled *Setting up the PC to Print to the Attached Printer* below.)
3. Install the server component of OnNet software on the PC. (See the section entitled *Installing FTP'S OnNet Server Control Component* below.)
4. Configure the OnNet software. (See the section entitled *Configuring FTP's OnNet Server Control Component* below.)
5. Add a host entry on the IBM RS6000. (See the section entitled *Adding a Host on the RS6000 for a Remote Printer* below.)
6. Create a remote queue on the RS6000. (See the section entitled *Creating a Print Queue on the RS6000 for a Remote Printer* below.)
7. Set up the printer in MUNIS. (See *MUNIS System Administration (MSA-1)* in the *MUNIS User Procedures Guide* for instructions.)

Below are detailed instructions for steps 2 through 6:

Setting up the PC to Print to the Attached Printer

1. Click the Windows **Start** button.
2. Choose **Settings**, then **Printers**.
3. Double-click on **Add Printer**.

The Add Printer Wizard will launch.

4. Click the **Next** button.
5. Make sure that **Local printer** is checked. Local means the printer you wish to print to is attached to your PC.
6. Click the **Next** button.

7. Click on **IBM** in the **Manufacturers** column (on the left side), then click on **IBM Proprinter XL** in the **Printers** column (on the right).
8. Click the **Next** button.
9. Select **LPT1 Printer Port**.
10. Click the **Next** button.
11. Type in the **Printer name**.
12. Ensure that this printer is NOT set as the default printer.
13. Click the **Next** button.
14. *If you have the printer turned on and attached*, click on the **Next** button to print a test page.
15. *If the printer isn't attached*, click **No** and then click the **Next** button.
16. Windows 95 will then install the software for the printer you have selected. (You may need your Windows 95 diskettes, CD-ROM, or access to your network, depending on the way the original installation was performed.)

Installing FTP'S OnNet Server Control Component (lpd)

1. Make a new directory called Lpdserv in C:\Program Files:
 - a) Double-click the **My Computer** icon on the desktop.
 - b) Double-click **C:** to open it.
 - c) Double-click the **Program Files** directory to open it.
 - d) Select **File -> New -> Folder** from the menu bar.
 - e) Name the new folder **Lpdserv**.
2. Copy the server control component file to the correct directory:
 - a) Return to the C: window.
 - b) Double-click the **ONNET50** directory
 - c) Right-click on the **lpds.exe** file.
 - d) Select **Copy** from the pop-up window.
 - e) Return to the Program Files window.
 - f) Right-click the **Lpdserv** folder and select **Paste** from the pop-up window.
3. Double-click the **Lpdserv** folder icon to open it.
4. Double-click on the **LPDS.EXE** file in the C:\Program Files\Lpdserv window.

NOTE: *Do NOT run the LPDS.EXE file from the ONNET50 directory.*

A DOS window opens and the Server Control Component is installed.

5. Close the DOS window (click on the **X** in the upper right corner).

6. Edit the autoexec.bat file, adding the following line:

SET PCTCP=C:\PROGRA~1\LPDSERV\PCTCP.INI

NOTE: *Contact your District Technology Coordinator for instructions if you are unsure how to perform this task.*

7. Reboot your PC.

Configuring FTP'S OnNet Server Control Component (lpd)

1. Click the Windows **Start** button.

2. Choose **Run**, then **Browse**.

3. Select **C:\Program Files\Lpdserv\ctlapp.exe**.

4. Click the **OK** button.

5. Select **Session -> Modify current session** from the menu bar.

6. Highlight **FTP Server**.

7. Select **Remove** to move to the left column.

8. Click **System Log Server** to select it.

9. Select **Remove** to move to the left column.

10. Click **LPD Print Server** to select it. Activate the option by clicking in the box under **Active**. Once activated, a checkmark will appear in the box.

11. Click the **OK** button.

The LPD Print Server sends a message indicating "No print Queues are currently configured. Please select Configure LPD Print Server to configure a print queue."

12. Click the **OK** button.

13. Select **Settings -> Configure LPD Print Server** from the menu bar.

14. Click the **Add** button.

The Add Printer Queue window appears.

15. Enter the following information:

Field	Setting
Queue Name	print_q
Directory	C:\Progra~1\Lpdserv\print_q
Windows Printer	Click the down arrow and select, from the pull-down list, the IBM Proprinter XL on LPT1 configured earlier.
Spooling	On (a check appears in the box)
Header Pages	Off (the box is not checked)
Form Feed	On (a check appears in the box)

16. Click the **OK** button.

Print_q should now show up in the Current Print Queues box.

17. Click the down arrow next to the **Logging Level** field. Select **Debug** from the pull-down list.

18. Click the **OK** button.

19. Select **Session -> Save As** from the menu bar.

20. Type **WLPD** in the **Session name** field.

21. Click the **OK** button.

22. Select **Commands -> Start LPD Print Server** from the menu bar.

Note: *If the Start LPD Print Server option is not available, select Stop LPD Print Server and then select Start LPD Print Server.*

11. To set the LPD Server Control to autoloading each time Windows 95 is started:

- a) Click the Windows **Start** button.
- b) Select **Programs -> Windows Explorer**.
- c) In the All Folders window (left side of the screen), click on the **Program Files** folder icon, then the **Lpdserv** folder icon in that directory. The contents of the C:\Program Files\Lpdserv directory will display on the right side.
- d) In the All Folders window (left side), scroll down to the Windows folder icon and expand the directory by clicking on the + sign.
- e) Scroll down to the Start Menu folder icon and expand it by clicking on the + sign.
- f) Scroll down to the Programs folder icon and expand it by clicking on the + sign.
- g) Go to the contents of C:\Program Files\Lpdserv window (right side).
- h) Click on and drag the **Ctlapp.exe** file icon to C:\Windows\Startmenu\Programs\Startup on the left side of the screen and drop it in this location. The drag-and-drop action creates a shortcut to ctlapp.exe.

- i) Go to the contents of the C:\Windows\Startmenu\Programs\Startup window (left side).
- j) Right-click on the **ctlapp shortcut** (right side).
- k) Select **Properties** from the pop-up window.
- l) Select the **Shortcut** tab.
- m) In the target window, insert **-s wlpd** after ctlapp.exe. The line should now read:
“c:\Program Files\Lpdserv\ctlapp.exe” -s wlpd
- n) Click the **Apply** button.
- o) Click the **OK** button.

Adding a Host on the RS6000 for a Remote Printer

The following steps must be followed to add a print server as a host:

1. Login to the RS6000 server as “root” at the console.
2. At the \$ prompt, type in **smit tcpip** and press **Enter**.

This will bring up the TCP/IP screen.

3. Select the **Further Configuration** option on the TCP/IP screen.
4. Select the **Name Resolution** option on the Further Configuration screen.
5. Select the **Hosts Table** option on the Name Resolution screen.
6. Select the **Add a Host** option on the Hosts Table screen.

The following screen is displayed:

Session	Edit	Commands	Settings	Help
Add a Host Name				
Type or select values in entry fields. Press Enter AFTER making all desired changes.				
				[Entry Fields]
* INTERNET ADDRESS (dotted decimal)				[]
* HOST NAME				[]
ALIAS(ES) (if any - separated by blank space)				[]
COMMENT (if any - for the host entry)				[]
F1=Help		F2=Refresh	F3=Cancel	F4=List
Esc+5=Reset		Esc+6=Command	Esc+7=Edit	Esc+8=Image
Esc+9=Shell		Esc+0=Exit	Enter=Do	

- Using the **down arrow key** to navigate, enter the following information on the Add a Host Name screen:
INTERNET ADDRESS: Enter the **IP address** of the Print Server.
HOST NAME: Enter a **descriptive name** such as remote, hplj, etc.
ALIAS(ES): Leave blank.
COMMENT: Enter a **descriptive longer name** in the comment field.
- Press **Enter** to complete the process of adding a host name.
- After the processing is complete, press the **F3 key twice** to go to the Hosts Table screen.
- Select the **List All Hosts** option on the Hosts Table screen to verify that the host you added is now listed. If the host is not listed, repeat the steps above.
- After the host name has been added, press **F3** until you have exited **smit**.

Creating a Print Queue on the RS6000 for a Remote Printer

The following steps must be followed to create a print queue for a print server:

- At the \$ prompt, type the following:
smit print
This will bring up the Print Spooling screen.
- Select the **Add a Print Queue** option on the Print Spooling screen.
The following sub-screen is displayed:

Session	Edit	Commands	Settings	Help																
Print Spooling																				
Move cursor to desired item and press Enter																				
Start a Print Job Manage Print Jobs																				
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F1=Help	F2=Refresh	F3=Cancel																		
Esc+8=Image	Esc+0=Exit	Enter=Do																		
F1/=Find	n=Find Next																			

3. Using the **down arrow key** to navigate, select **remote** from the menu on the sub-screen above.

The following screen is displayed:

Session	Edit	Commands	Settings	Help								
Print Spooling												
Move cursor to desired item and press Enter												
Start a Print Job Manage Print Jobs												
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Esc+8=Image	Esc+0=Exit	Enter=Do										
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4. Select **Local filtering before sending to print server**.
5. Select the **manufacturer** of the printer from the Remote Printer Type screen that is displayed.
6. Select the printer **model** from the menu that is displayed.

7. Using the **down arrow key** to navigate, enter the following information on the **Add a Remote Print Queue with Local Filtering** screen:
 - Name of new PRINT QUEUE to add: Should **correspond to the host name** added in the section entitled *Adding a Host on the RS6000 for a Remote Printer* above (e.g., remote_q, hplj_q, etc.).
 - HOSTNAME of remote server: Should **be the host name** added in the section entitled *Adding a Host on the RS6000 for a Remote Printer* above (e.g., remote, hplj, etc.).
 - Name of QUEUE on remote server: **print_q** (Corresponds to the name given when configuring OnNet. See page 7, step 4 for Windows 3.1x, or page 9, step 12 for Window 95.)
8. Press the **Enter** key to complete the process of adding a print queue.
9. After the processing is complete, press the **F3 key twice** to go to the Print Spooling screen.
10. Select the **List All Print Queues** option on the Print Spooling screen and press **Enter** to verify that the print queue you added is now listed. If the print queue is not listed, repeat the steps above.
11. If the print queue is listed, press **F3** until you exit **smit**.
12. At the \$ prompt, type the following command to test the printer:
lp -d remote_q /etc/motd (Use the queue name you just added in this command.)
13. Press **Enter**. If the printer does not print, retrace the steps above.

CONFIGURING FOR REMOTE CHECK PRINTING

The instructions below are for printing checks on a printer attached to a PC running OnNet Server Control remote print services.

The following steps are required for setting up remote check printing:

1. Set up the printer according to the standard operating procedures document developed by KDE. These settings have been tested both in a lab environment and in the field by DAS Technical Support and contain the physical setup as well as the AIX virtual printer settings. (See the document *Host Printing - Parallel (OSC-1)* in the *MUNIS User Procedures Guide* for instructions on this process.)
2. Set up the PC to print to the printer. (See the section entitled *Setting up the PC to Print to the Attached Printer* above.) Be sure to install the **IBM Proprinter XL** print driver as your default printer in Windows.
3. Install the server component of FTP'S OnNet software on the PC. (See the section entitled *Installing FTP'S OnNet Server Control Component* above.)
4. Configure the OnNet software. (See the section entitled *Configuring FTP'S OnNet Server Control Component* above.)
5. Add a host entry on the IBM RS6000. (See the section entitled *Adding a Host on the RS6000 for a Remote Printer* above.)
6. Create a remote print queue on the RS6000 for check printing. (See the section entitled *Creating a Print Queue on the RS6000 for Check Printing* below.)
7. Set up the printer in MUNIS. (See *MUNIS System Administration (MSA-1)* in the *MUNIS User Procedures Guide* for instructions.)

Below are detailed instructions for performing step 6.

Creating a Print Queue on the RS6000 for Check Printing

The following steps must be followed to create a print queue for check printing:

1. At the \$ prompt, type the following:

smit print

This will bring up the Print Spooling screen.

2. Select the **Add a Print Queue** option on the Print Spooling screen.

The following sub-screen is displayed:

Session	Edit	Commands	Settings	Help																
Print Spooling																				
Move cursor to desired item and press Enter																				
Start a Print Job Manage Print Jobs																				
<div style="text-align: center;">Add a Print Queue</div> Move cursor to desired item and press Enter. Use arrow keys to scroll. <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">#ATTACHMENT TYPE</th> <th style="text-align: left;">DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>local</td> <td>Printer Attached to Local Host</td> </tr> <tr style="background-color: yellow;"> <td>remote</td> <td>Printer Attached to Remote Host</td> </tr> <tr> <td>xstation</td> <td>Printer Attached to Xstation</td> </tr> <tr> <td>ascii</td> <td>Printer Attached to ASCII Terminal</td> </tr> <tr> <td>hpJetDirect</td> <td>Network Printer (HP JetDirect)</td> </tr> <tr> <td>file</td> <td>File (in /dev directory)</td> </tr> <tr> <td>other</td> <td>User Defined Backend</td> </tr> </tbody> </table> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> F1=Help F2=Refresh F3=Cancel </div> <div style="display: flex; justify-content: space-between;"> Esc+8=Image Esc+0=Exit Enter=Do </div> <div style="display: flex; justify-content: space-between;"> F1/=Find n=Find Next </div>					#ATTACHMENT TYPE	DESCRIPTION	local	Printer Attached to Local Host	remote	Printer Attached to Remote Host	xstation	Printer Attached to Xstation	ascii	Printer Attached to ASCII Terminal	hpJetDirect	Network Printer (HP JetDirect)	file	File (in /dev directory)	other	User Defined Backend
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file	File (in /dev directory)																			
other	User Defined Backend																			

3. Using the **down arrow key** to navigate, select **remote** from the menu on the sub-screen above.

Session	Edit	Commands	Settings	Help								
Print Spooling												
Move cursor to desired item and press Enter												
Start a Print Job Manage Print Jobs												
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remote	Printer Attached to Remote Host											
Standard processing												
Standard with NFS access to server print queue attributes												
Local filtering before sending to print server												

4. Select **Local Filtering Before Sending to Remote Host**.

5. Select **Other** from the Remote Printer Type screen that is displayed.
6. Select the **print driver** for your printer from the next screen. Refer to standard operating procedures in the document entitled *Host Printing - Parallel (OSC-1)* in the *MUNIS User Procedures Guide* for instructions.

7. Using the **down arrow key** to navigate, enter the following information:

Enter a **print queue name** that **corresponds to the host name** added in the section entitled *Adding a Host on the RS6000 for a Remote Printer* above (e.g., rchk_q).

Host Name of Remote Server: Enter the **Remote Host Name** added in the section entitled *Adding a Host on the RS6000 for a Remote Printer* above (e.g., remote, hplj, etc.).

Name of Queue on Remote Host: Enter the **queue name** (default is print_q) assigned on the Windows host.

Press **Enter** to complete the process of adding a print queue.
8. After the processing is complete, press the **F3 key twice** to go to the Print Spooling screen.
9. Select **Change/Show Print Queue Characteristics** from the Print Spooling screen.
10. Enter the **name of the print queue** that you just created.
11. Select **Default Print Job Attributes** and, using the down arrow key to navigate, set the following values:

Restore Printer = **No**

Send Form Feed After Each File = **No**

Print Quality = **Draft**

Page Length = **56**

Line Density = **8**

Press **Enter** to complete the process.
12. Select the **List All Print Queues** option on the Print Spooling screen and press **Enter** to verify that the print queue you added is now listed. If the print queue is not listed, repeat the steps above.
13. If the print queue is listed, press **F3** until you exit **smit**.

14. At the \$ prompt, type the following command to test the printer:

lp -d rchk_q /etc/motd (Use the queue name you just added in this command.)

15. Press **Enter**. If the printer does not print, retrace the steps above.

CONFIGURING MUNIS PRINTERS

All of the above instructions pertain to enabling printing from the RS6000 MUNIS server to printers that are not directly attached. Once remote printing capabilities are established, the printer must be defined in MUNIS software to allow printing from MUNIS. For instructions on this step, refer to the documentation entitled ***MUNIS System Administration (MSA-1)*** in the ***MUNIS User Procedures Guide***.